

**Commonwealth of Kentucky  
Division for Air Quality**

**PERMIT APPLICATION SUMMARY FORM**

Completed by: Sandra M. Cooke

GENERAL INFORMATION:

Name:	Uranium Disposition Services, LLC
Address:	1020 Monarch Street, Suite 100 Lexington, KY 40513
Date application received:	
SIC Code/SIC description:	2819
Source ID:	21-145-00091
Agency Interest:	49944
Activity:	APE20070001
Permit:	F-05-015 R1

APPLICATION TYPE/PERMIT ACTIVITY:

<input type="checkbox"/> Initial issuance	<input type="checkbox"/> General permit
<input checked="" type="checkbox"/> Permit modification	<input checked="" type="checkbox"/> Conditional major
<input type="checkbox"/> Administrative	<input type="checkbox"/> Title V
<input type="checkbox"/> Minor	<input type="checkbox"/> Synthetic minor
<input checked="" type="checkbox"/> Significant	<input type="checkbox"/> Operating
<input type="checkbox"/> Permit renewal	<input checked="" type="checkbox"/> Construction/operating

COMPLIANCE SUMMARY:

<input type="checkbox"/> Source is out of compliance	<input type="checkbox"/> Compliance schedule included
<input type="checkbox"/> Compliance certification signed	<input checked="" type="checkbox"/> Not constructed yet

APPLICABLE REQUIREMENTS LIST:

<input type="checkbox"/> NSR	<input type="checkbox"/> NSPS	<input checked="" type="checkbox"/> SIP
<input type="checkbox"/> PSD	<input checked="" type="checkbox"/> NESHAPS	<input type="checkbox"/> Other
<input type="checkbox"/> Netted out of PSD/NSR	<input type="checkbox"/> Not major modification per 401 KAR 51:001, 1(116)(b)	

MISCELLANEOUS:

- ☐ Acid rain source
- ☐ Source subject to 112(r)
- ☒ Source applied for federally enforceable emissions cap
- ☐ Source provided terms for alternative operating scenarios
- ☐ Source subject to a MACT standard
- ☐ Source requested case-by-case 112(g) or (j) determination
- ☐ Application proposes new control technology
- ☒ Certified by responsible official
- ☒ Diagrams or drawings included
- ☒ Confidential business information (CBI) submitted in application
- ☐ Pollution Prevention Measures
- ☐ Area is non-attainment (list pollutants):

## EMISSIONS SUMMARY:

POLLUTANT	ACTUAL (TPY)	POTENTIAL (TPY) *
PM/PM10	<1	16.35*
<b>HAPS</b>		
HF (664-39-3)	0.7	16.33*
RADIONUCLIDES (URANIUM)	.000003 (.0006 LB/YR)	.011* (22 LB/YR)

\*Potential includes a catastrophic bounding case including several safety and containment system simultaneous failures. This is not considered a credible occurrence. Also, the Hydrogen Fluoride, listed as a HAP, is the expected marketable product from this process; therefore the assumption of no removal of HF from the vapor released to atmosphere is not credible. Finally, the building itself will be kept at negative pressure relative to the outside to provide secondary containment of all releases.

## SOURCE DESCRIPTION:

The Depleted Uranium Hexafluoride Conversion Facility will convert depleted uranium hexafluoride, currently in storage cylinders on the DOE Paducah site, into uranium oxide powder, aqueous hydrogen fluoride and calcium fluoride. The low-level radioactive uranium oxide will be returned to stabilized cylinders and disposed of at a low-level waste facility. The hydrogen fluoride and possibly the calcium fluoride will be sold to industrial users of these chemicals. AREVA NP's proprietary process will be used for this conversion and this facility will be similar to the one currently operating at the AREVA NP facility in Richland, Washington.

This application for revision of the original construction/operating permit was submitted to change the design of the facility. All hydrogen fluoride (HF) resulting from the process will be sold at original strength (55 %), so no further processing of the HF will be required and none will be neutralized. This eliminates the need for the second building and several pieces of equipment and moves Emission Point 02 to the HF Storage and Loading Area. Air displaced during the filling of the HF tanks and transportation vehicles will now be routed through a dedicated caustic scrubber and other control devices rather than routed for scrubbing through the Neutralization Building or the Conversion Building. This change actually reduces the originally predicted concentrations of HF in the surrounding atmosphere. In addition, this revision removes the requirement to closely monitor the temperature across the HEPA pre-filters and filters. Temperatures in the ambient areas around the HEPA filters are maintained at approximately 80° F with controls to ensure temperatures do not exceed 100°F. The process itself is maintained around 93° F. Since HEPA filters use a glass fiber, efficiency is not affected by temperature. The filters will continue to work until either the bonding materials or the glass fibers themselves breakdown and/or melt. An event that could cause a temperature high enough to cause a breakdown in a HEPA filter, such as a fire, would cause the safety systems to shut down the process long before a melting temperature could be reached. There would be no flow across the filters by the time a temperature high enough to affect efficiency could be reached. At the other temperature extreme, cold causing the formation of crystals within the filter, and thereby reducing efficiency, is not plausible because the process temperature itself is around 93 °F and the automatic controls, with temperature sensors, would shut down the process before it could become cold enough to cause any problem. The automatic safety systems for the process, coupled with the controlled HVAC and emergency systems within the building itself make monitoring and recording temperatures across the HEPAs meaningless for compliance purposes. The most important parameter to monitor to ensure efficiency across the filters is the pressure, as a change in

pressure can indicate clogging or breach (puncture). Pressure monitoring remains in the permit.

**EMISSIONS AND OPERATING CAPS DESCRIPTIONS:**

Emissions of Hydrogen Fluoride (a HAP and/or Toxic) to the atmosphere shall be limited to less than 9 tons per year on a rolling 12-month basis. Radionuclide (uranium oxide powder) release shall be limited below that amount which would cause any member of the public to receive in any year an effective dose equivalent of 10 mrem/yr as defined and prescribed in 40 CFR 61 Subpart H (61.90 through 61.7).